Review of livestock production in Kakamega, Busia and Bungoma Counties in Western Kenya

Solomon Mwendia and An Notenbaert

Introduction

To inform BMZ forage project in Western Kenya, literature review was undertaken to provide understanding of demographics and livestock keeping in Kakamega, Busia and Bungoma Counties in Western Kenya. Livestock agriculture is key in Kenyan household incomes and human nutrition through milk and meat. However, production potential is usually not fully utilized, attributable to a number of challenges including; unimproved local breeds, diseases and in adequate feeds and feeding. Often the primary cause of these challenges are confounded by farmers' lack of technical knowledge on animal husbandry, feeding and inaccessible technologies that would otherwise contribute to increase productivity. Kenya's' increasing human population has led to small land holdings, as land is subdivided over generations leading to livestock intensification. In a rural household set up, cattle offer more than income and nutrition. Manure is often used to fertilize cropland that would otherwise require external inorganic fertilizers, thus offer efficiency in nutrient cycling. In addition, cattle act as insurance against monetary requirements, that are more than a household can cope with in case need arises e.g. college fees could be met by proceeds from sale of cattle.

Technologies that offer maximum production per unit of land, therefore, becomes crucial to increase productivity. While it is known that most of the inputs in cattle rearing comes from the feeding component, addressing feeds and feeding therefore is inevitable in realizing increased livestock productivity.

Approach

Available literature for Busia, Bungoma and Kakamega counties was collated from available reports not earlier than year 2000. While the emphasis was on livestock and specifically cattle, socio-economic attributes were also considered to provide an understanding of the context within which the agricultural activities occur that largely influence the sector.

Findings

Table 1. Socio-economic attributes of Busia, Bungoma and Kakamega Counties

Attribute	Busia	Bungoma	Kakamega
Total Population (2009) census- KNBS, 2015	735,294	1,359,983	1,644,328
Population <18 years (%)	55.6	56.0	54.0
Orphan hood of children <15 years and rank our of 47 counties in- brackets	1.5 (5)	0.6(39)	1.0 (19)
Households of 1 - 3 people (%)	34.4	30.9	35.7
Number of households of 4 -6 people	64,100	113,200	152,200
Households of 7 and more people (%)	24.1	27.3	21.5
Female headed households (%)	37.8	30.7	34.5
Access to safe water sources (%)	62.3	72.3	61.2
Mean per person monthly expenditure (KES)	2,110	3,030	2,710
Poverty incidence (%)	60.4	47.3	49.2
Rank by contribution to national poverty (out of 47 counties)	15	5	1
Surface area km^2	1,685	3,018	3,004
Number of households	154,200	270,800	355,700
Population density (people/km2)	435	449	546
Percentage (%) of employed labor force in small-scale agriculture	56.0	47.5	42.2
Number of people in small scale agriculture	154,200	241,500	251,400
Households owing livestock (%)	49.2	50.2	50.2
Number of Households owning cattle	53,100	125,100	168,700
Percentage (%) of unemployed inactive labor force	5.2	4.4	7.6
Male Participation in Economic Activities	81.4	80.2	79.9
Female Participation in Economic Activities	80.9	79.4	77.1

Table 2. Agriculture and livestock attributes for Busia, Bungoma and Kakamega Counties

Agriculture and livestock attributes for Busia, Bungoma and Kakamega counties			
	Busia	**Bungoma**	**Kakamega**
Rainfall and elevation	• Bimodal 1200 to 1500 mm / year 80% of land is arable • Altitude 1000-1500 masl	• Two rainy seasons with average rainfall from 1200mm to 1800mm per annum. • Altitude 1500-2500 masl	• Kakamega region receives substantial annual rainfall ~1971mm. • Altitude 1000-2000 masl
Seasons	• long-rains 'Irotso' March-July); • Short 'Sirumbi' rains September – November. • Dry season 'Simiyu' from January to February • 'Likesa' refers to the harvesting season from July to August and December	• Long rains- March – May • Short rains September - November	• Long rains March - July • Short rains October - December.
Land size holdings	• Majority smallholder farmers with < 1 ha	• Average land sizes (acres) 3.8 • Land allocation(%) food crops (58), cash crop (14), pasture (15), Fodder (5)	• Average land sizes (acres) 2.4 • Land allocation(%) food crops (64), cash crop (5), pasture (19), Fodder (4)
Cattle attributes	• In Matayos Busia sub-county. Improved dairy Crosses are about 3590, followed by local dairy at about 20,900. • The use of both improved dairy cattle and the locals is production of milk, manure and breeding stock sale (income). In addition locals are for paying dowry • Agricultural and farm inputs are readily available from agro-vets only the costs farmers consider to be high • Annual milk production (million liters)- 5.3 • Bull mostly used for breeding, and few farmers use A.I. that cost KES 1,200 – 1,500 • Livestock production system vary; Zero-grazing, semi-zero grazing, tethering and free grazing • Livestock population stood at 163,795 in 2009	• Both Improved dairy cattle and local zebus are available. • Over the years the number of local zebus have been much higher compared to improved cattle. From 1993 to 1998 improved cattle were slightly greater the 250,000 heads while the value of improved stood at < 50,000 over the same period. Ten years later , in 2009, the total cattle figure stood at 331,522 indicating a growth in the numbers • Grazing and cut and carry is practiced in combination. Households practicing both in percentages are 100, 64 respectively	• Both Improved dairy cattle and local zebus are available. • In 1998, the number of cattle were estimated at 144,275 out of which 20% were estimated as improved and the rest local zebus. By 2009, cattle population grew to 417,952 i.e. by a factor of about 2.9 times • Grazing and cut and carry is practice in combination. Households practicing both in percentages are 97, 87 respectively

Forages and feeds used	• Napier grass is the main roughage • In some cases Napier is purchased by some households. • Often improved cattle are supplemented with concentrates but often not in adequate amounts due to cost. Local cattle are allowed to graze • Crop residues-maize stovers are also part of the diet including also sweet potato vines	• Grazing natural and unimproved pastures • Napier grass is the main fodder • The estimated are (ha) Napier and natural pasture over the years: 850 (2010), 800 (2009), 790 (2008) • Napier grass yields about 1800 kg/acre (Fresh) • Percentage of households on use of concentrates (10)	• Grazing natural and unimproved pastures (81%) • Napier grass is the main fodder (18%) • Percentage of households on use of concentrates (9) • (46.9%) assert that dairy feeds production determine sustainability of donor funded dairy projects. • There is approximately 550, 4.1, 125 and 0.8 Hectares of natural pasture, improved pastures, Napier grass and Legumes respectively in the district.
Contribution of livestock in household incomes	• Income generated within the sub-county is mainly food crops, livestock and small businesses within and across the Uganda border. • Dairy contributes at least 17% while food crops and cash crops contribute the most of about 25% or more. The other sources include poultry, and employment	• Milk generates KES 25 million and beef KES 75 million in a year in the county • Dairy farming is dominated by women (64.8%), and men at 35.2%	• About 19.1 million liters of milk are produced annually while 364,000kg of beef is also produced annually.
Challenges in livestock production	• High cost of livestock inputs- feeds, A.I. and drugs • Within the year, feeds and Forage availability is usually constrained for four months (November, January, February and March) • Lack of improved breeds • Inadequate technical knowledge on fodder and feeding management	• Feed shortage. Percentage of experiencing feed shortage (90) • Livestock- diseases especially East Costa Fever • High cost of concentrates • Breeding- most of the cattle a are still the local, that result in low productivity	• Feed shortage. Percentage of experiencing feed shortage (87). Most of the farms are small contributing to low fodder production • Livestock- diseases especially East Costa Fever • High cost of concentrates
Other agricultural crops	• Maize-beans, sugarcane, cassava, bananas, vegetables, groundnuts, Pineapple	• Food crops (%) Maize • (26) Pulses (24), Banana • (3) • Cash crops (%) Sugarcane cane, (9), Coffee,(3), Trees (1)	• Food Crops Maize (28), Pulses • (26), Banana (3) • Cash Crops Sugarcane (3), Tea (0.5), Pulses (0.4)

N/B- Feed assessment reports specifically for Bungoma and Kakamega are not available and FEAST available for western Kenya is specifically for Vihiga and Busia counties that neighbor Kakamega and Bungoma was used to give an indication in the latter two counties of interest

Conclusions

Livestock remains key driver in economic growth of Kenya including the counties in question. According to a recent Kenya's economic survey report (KNBS, 2018), recorded milk sale have been generally on the rise from KES 16.2 billion in 2013 to 20.9 billion in 2017. However, there still exists a room for improvement, an opportunity that possibly should be exploited to contribute meeting demand for animal source foods.

References

Kenya National Bureau of Statistics (2018). *Economic Survey 2018*. www.knbs.or.ke/download/economic-survey-2018/

Merkel , A. 2018. Kakamega's climate. Climate-Data.org. AM Online Projects, Oedheim, Germany. Available at climate-data.org/location/922/

Muyekho F.N., Lukuyu, B. and Duncan, A.J. 2014. Characterization of the livestock production systems and potential to enhance dairy productivity through improved feeding in sub-humid western Kenya. Nairobi: ILRI. hdl.handle.net/10568/64946

Samoei, P.K., Wanyonyi, M; Muthami, D; Bore, J. 2015. Spatial Dimensions of Well-being in Kenya: Where are the Poor? from Counties to Wards. Kenya National Bureau of Statistics (KNBS), Nairobi, Kenya.

Waithaka, M.M.; Nyangaga, J.N.; Staal, S.J.; Wokabi, A.W.; Njubi, D.; Muriuki, K.G.; Njoroge, L.N.; Wanjohi, P.N. 2002. Characterization of dairy systems in the western Kenya region. Smallholder Dairy (R&D) Project Report of Dairy and Crop Characterisation Activities in Western Kenya. hdl.handle.net/10568/1859

Wiesmann, U., Kiteme, B., Mwangi, Z. 2016. Socio-Economic Atlas of Kenya: Depicting the National Population Census by County and Sub-Location. Second, revised edition. KNBS, Nairobi. CETRAD, Nanyuki. CDE, Bern. doi: 10.7892/boris.83693